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ABSTRACT

One analysis of the creative process includes four steps: preparation; concentrated effort; withdrawal from the problem; insight or illumination; and verification, evaluation, and elaboration. The creative process is described elsewhere in four steps: openess, focusing, discipline, and closure. Research studies of highly creative adults have shown that they share these traits: flexibility, fluency, elaboration, tolerance of ambiguity, originality, breadth of interest, sensitivity, curiosity, independence, reflection, action, concentration and persistence, commitment, expression of total personality, and sense of humor. A 20-item creativity checklist for teachers and eight techniques to encourage creativity in the classroom are presented. A checklist of traits common in highly creative students is also presented. (KM)

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CHARACTERISTICS OF CREATIVITY

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PS 006655

CHARACTERISTICS OF CREATIVITY

J. P. Guilford, well-known in research and writing on creativity, visualizes creative thinking as a subclass of thinking in general. Guilford and other educators distinguish between convergent and divergent thinking in the following way. Convergent thinking (the kind most frequently encountered in our schools) is aimed toward a single correct answer. Divergent thinking is inquiring, searching around, often leading to unconventional and unexpected answers (the kind which would probably not bring you a high grade on the usual school examination).

What are the steps to the creative process? One analysis includes these five steps:

1. Preparation (acquisition of skills, techniques, and information).

2. Concentrated effort (to find a solution or suitable form).

3. Withdrawal from the problem.

4. Insight or illumination.

5. Verification, evaluation, and elaboration.

One of the most interesting analyses is presented by Arthur W. Foshay in Alice Miel's book, Creativity in Teaching. The parts of the creative process are described as follows:

1. Openness: Deliberate letting in of data and new experiences with no effort to give order or to judge. What comes in may be threatening, disorganizing; the creative person sometimes tries to handle the threat by delaying tactics, elaborate arranging of materials, and similar rituals.

2. Focusing: Back-and-forth mental efforts to give order and meaning to the data, the experiences.

3. Discipline: The self-discipline, concentration, hard work as the creative person works out his idea or product.

4. Closure: The product is finished when the creator feels it is, he might destroy it and start over, or simply decide unfinished is the best he can do.

This process does not take place in neat steps, always forward. It involves much teetering back and forth between experiencing and focusing or illumination, and the sudden perception of order and meaning. It is a process which takes time, but the time may be a few minutes or several years. In the young child, the process is likely to be very brief, involving spontaneity and insight rather than problem-solving. The products of the creative process range from highly personal, imaginative works of art to solutions of problems in not strikingly unusual ways. The creative process involves imagination and problem-solving techniques, but these are not the whole process.

Characteristics of the Creative Adult

Research studies of artists, writers, scientists, and other highly creative adults reveal the following traits as among those shared by many unusually creative people:

1. Flexibility: The ability to go beyond tradition, habits, and the obvious. To turn ideas and materials to new, different, and unusual uses.

2. Fluency: The ability to think of many ideas; many possible solutions to a problem.

3. Elaboration: The ability to work out the details of an idea or solution.

4. Tolerance of ambiguity: The ability to hold conflicting ideas and values and to bring about a reconciliation without undue tension. The values of creative persons, for example, seem to be both aesthetic and theoretical, two value systems which might be considered antithetical. The creative person appears to be interested not only in solutions to

problems but also in "elegant" aesthetically satisfying solutions. His goal seems to be both truth and beauty.

5. Originality: Divergent rather than convergent thinking, going beyond commonly accepted ideas to unusual forms, ideas, approaches, solutions.

6. Breadth of interest: Wide range of interests with much more concern for the "big ideas," broad meanings, and implications rather than for small details and facts for the sake of facts.

7. Sensitivity: The ability to sense problems, to see deficiencies and needs in life, the challenge to find solutions and fill these needs. Sensitivity to our own inner life and feelings, thoughts and feelings of others.

8. Curiosity: Openness to new ideas and experiences; the capacity to be puzzled; actively experimenting with ideas and the pleasure in seeking and discovering ideas.

9. Independence: Thinking things through our own self-reliance and forcefulness.

10. Reflection: The ability to consider and reconsider, to evaluate our ideas as well as the ideas of others; to take time to achieve understanding and insight, to look ahead and plan, to visualize the complete picture.

11. Action: The ability to put ideas in action; to begin, help, shape, with high energy and enthusiasm these ideas.

12. Concentration and persistence: The ability to work hard, long, consistently, and persistently with extraordinary concentration.

13. Commitment: Deep involvement, intense commitment, deep caring, almost of a metaphysical nature.

14. Expression of total personality: Expression of both male and female sides of nature, which at times leads to tension in our society. As the creative male shows such supposedly female traits as sensitivity, self-awareness, and breadth of interests or as the female shows such "male" traits as independence, self-reliance and forcefulness.

15. Sense of humor: The ability to see and express the humor in the contradictions and ambiguities of life. To maintain balance without losing commitment.

Creativity Checklist for Teachers

1. Do you really care about teaching? Does it renew or exhaust you? Is it a way of life and not just a way or earning a living?

2. Do you teach today the same as you did one year ago? Five years ago? Twenty years ago?

3. Are you doing highly unusual, different, and exciting things in your teaching this year? Are you experimenting with new teaching materials, methods, and ideas?

4. Do you read about education in general (not just your own speciality) and about areas other than education?

5. Do you really care about children? Do you respect them? Do you anticipate differences in each child? Do you see children not as gifted or retarded, average or accelerated, alike in some basic ways and yet each unlike any child encountered before or to be encountered again, each unique, different from other people, and exciting in potential?

6. Do you let some children feel inferior to other children? Do you put one child against another, "See what neat work John does?"

7. Do you emphasize sex roles? Do you say, "Girls usually like this," or "Let's not do that, Sue, that is for boys"?

8. Do you sometimes use flashes of insight which come to you? When a pupil says, "Hey, I just got a crazy idea," and tells you about it, do you say, "That's an interesting idea; let's try it out"?

9. Do you welcome changes in curriculum, such as the so-called "new" mathematics or "new" science? Do you seek information about such changes eagerly, receptively, yet critically? Or do you resist changes and speak of the "good old days when children learned their numbers without all this nonsense?"

10. Do you rely primarily in your teaching on the textbook? Is most of your class period devoted to talk about what is in the textbook?

11. Do you set up the daily schedule and make all classroom decisions? Do children feel free to suggest changes in classroom procedures? Are their suggestions ever adopted?

12. Do you need and require specific and authoritative answers to most questions?

13. Do children in your class feel free to express ideas contrary to yours and those in the textbook?

14. Is there much purposeful movement and activity in your room on an average day?

15. Do you allow time regularly for individual study projects?

16. Does your classroom invite new experiences and individual projects? Is there a good classroom library? Materials for examination and handling? Readily available art and construction materials?

17. Do you use a wide variety of teaching materials and methods; such as, films, filmstrips, recordings, charts, demonstration, and dramatics?

18. Do you ever discuss controversial issues in your classroom?

PS 006655

19. Outside the classroom, are you deeply involved in some community activities or causes? Have you acquired any exciting new interests in the last five years?

20. Do you feel competent to think about and come to some conclusions about such big questions as, "What is the purpose of life?" and "What is the purpose of education?"

Things to Do in the Classroom to Encourage Creativity

1. To encourage fluency of ideas, ask children of any age to suggest as many uses as they can for common objectives such as a hammer, empty oatmeal box, hairpin, wastebasket, etc. Along similar lines ask them to think of as many things as they can in the shape of a circle, triangle, square; things which are red, purple, green; things which are sticky, hard, soft.

2. To encourage their curiosity, sensitivity, and sense of observation, ask children to look out the classroom windows and list only things they see in winter, or summer, and things which are circular, rectangular, or a certain color. You might take the class on a walk around the block to make their observations and then make their lists; repeat the trip again to see what they have missed.

3. Try "brainstorming" on any grade leve. Alex Osborn has described this method for group thinking designed to provide an atmosphere which encourages new ideas. The purpose is to get as many ideas as possible with regard to a given problem. Just follow these simple rules:

    a. Do not criticize ideas while they are being given.

    b. The wilder the ideas, the better. It's easier to tame them down later than to think them up.

    c. The more the better. The greater the number of ideas, the greater the possibility you will find some really good ideas.

    d. Encourage combining or improving upon ideas already given.

To brainstorm in the classroom, you might go about it this way. Write down the problem on the blackboard. Have the students suggest all the ideas which occur to them for solving the problem, no matter how crazy some of the ideas may seem. Write down

the solutions as they suggest them on the blackboard where all can see. Do not worry about overlapping ideas. You can, in fact, encourage combining ideas or improving on ideas given by others. When the ideas are all in, have the group pick the ones which seem best.

4. To encourage children's ingenuity and imagination, ask them to describe (orally or in writing) what would happen if we had no hands; if we could not smell; if the earth were flat; if we all lived by the Golden Rule, etc.

5. For fun and ingenuity, have the class draw "squiggle" stories. Have each child draw three or four lines on the upper part of a piece of paper in crayon, paint, pencil, etc. Then have the children exchange papers. Ask each child to complete the drawing he has received, incorporating the original lines into his work. Then have him give the drawing a name and possibly write a story about it.

6. Have your class prepare for an examination in the usual way. When they come to class on examination day, ask them to write the questions for the examination rather than answers. Then discuss the questions, either the same day or the following day after you have looked them over and possibly graded them. Have the class discuss whether specific questions are good questions. What is a good question? What makes a good test?

7. Help children understand the importance of creativity to society by discussing and writing reports on important inventions such as the wheel, electric light, telephone, atomic fission, etc. Help them understand their own creativity and creative abilities by asking them to write answers to such questions as these:

   a. What do you especially like to create?

   b. What materials do you need for creation?

   c. Do you like to work alone, or with others?

   d. Do you like to work at any special time of day?

8. To encourage originality, when your students are to present reports, ask them to use any form of presentation other than writing or telling. Give them the general idea and let them loose.

To sum up, the methods and materials of creative teaching are group discussion with freedom to dissent; uninterrupted individual study; a wide variety of books and other teaching materials readily available for individual and group use; much purposeful movement and activity; and most of all, an atmosphere that encourages children to look critically at facts and ideas, test ideas, think of alternative methods and ideas, question and doubt, develop tolerance for new and unusual ideas, and to express their own ideas in new and unusual forms.

A Checklist of Traits Common in Highly Creative Students

The student asks many questions, often challenging the teacher and the textbook.

The student experiments with whatever is at hand.

The student's work tends to be off the beaten track, with much humor and playfulness.

The student is often bored with recitation and memorization of facts; he prefers talking about ideas and problems.

The student has a reputation among the other students and teachers for his wild and silly ideas.

The student has much energy, which gets him into trouble at times.

The student feels strongly about many things and often expresses his feelings.

The student, on examinations, sometimes comes up with unexpected, even "smart-alecky," answers.

The student likes to work alone.

The student is resented by some children because of his crazy ideas and his forcefulness in presenting and pushing them.

The student does not usually appear to be working hard, but he does fairly well at examination time.

The student on special projects, shows unusual capacity for originality, concentration, and just plain hard work.

How does a typical teacher react to a child who shows many of these traits? Not favorably. Studies by E. P. Torrance, J. W. Getzels, and D. M. Jackson show many teachers regard the highly creative child as less desirable, less ambitious, less studious, and less hard-working than children who are high on intelligence but low on creativity. Teachers like children who easily accept authority, work diligently at assigned task, memorize well, and obey all rules without question.

How Do You React to Your Creative Students?